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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/559,361	12/06/2005	Abraham Jan De Bart	NL 030638	5640

65913 7590 12/02/2009  
NXP, B.V.  
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M/S41-SJ  
1109 MCKAY DRIVE  
SAN JOSE, CA 95131

EXAMINER
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BURD, KEVIN MICHAEL

ART UNIT	PAPER NUMBER
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2611

NOTIFICATION DATE	DELIVERY MODE
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12/02/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/559,361	<b>Applicant(s)</b> DE BART ET AL.	
	<b>Examiner</b> Kevin M. Burd	<b>Art Unit</b> 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-15 is/are allowed.
- 6) ☒ Claim(s) 1,3-11 and 16-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

1. This office action, in response to the amendment filed 9/24/2009, is a final office action.

***Response to Arguments***

2. Applicant's arguments, with respect to the previous rejections of claims 12 and 13 have been fully considered and are persuasive. The rejection of these claims has been withdrawn.

3. Applicant's arguments filed 9/24/2009 have been fully considered but they are not persuasive regarding claims 1 and 3-11. Applicant states Shirakata does not disclose averaging the amplitude and/or phase of the data pilot carriers. The examiner disagrees. The phase difference is averaged. The value of the total pilot carriers will be determined. The total number of pilot carriers is measured. Therefore, the average of the phase is necessary to determine the average of the phase difference. In addition, the phase difference of the nth pilot carrier is shown in figure 5. That phase value is then averaged to provide an estimate for the phase error. The rejections of the claims are maintained and stated below.

4. A new rejection to claim 5 is stated below.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 3-10 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ro et al (US 7,283,498) in view of Shirakata et al (US 6,618,352).

Regarding claims 1, 3, 6, 7, 9, 10 and 17, Ro discloses an OFDM communication system (abstract). The system comprises a receiver as shown in figure 6. Pilot signals from each sub-channel are input to a BER measurer 602 to determine the quality of each of the sub-channels. The BER values are compared 604 and the number of pilot carriers to be allocated to a sub-channel is determined by comparing the BER of the sub-channel estimated using its pilot carriers in a base station (column 3, line 57 to column 4, line 7). If the BER of the pilot carriers for sub-channel 3 is less than a threshold, the number of pilot carriers is decreased (column 4, lines 22-33). Therefore, the quality of the pilot carriers is determined and when that quality is above or below a threshold, the allocation of the pilots is changed. Carriers with acceptable quality will be unchanged and carriers with unacceptable quality will be reduced or eliminated (column 4, lines 22-33). The data carrier and pilot carrier configuration is shown in figure 3. Ro does not disclose a correction unit for supplying a corrected signal comprising information on the data being corrected for a common amplitude error and/or a common phase error. Shirakata discloses an OFDM transmission system that corrects for phase error on each of the sub-carriers so the symbols can be demodulated even if a frequency error and a timing error are occurring between the transmitter and receiver (abstract). Column 15, lines 33-42 discloses a data carrier phase correcting unit directly

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corrects the data carriers on the basis of the phase error signal. Shirakata discloses the phase error is determined by calculating the phase difference and determining the average value to more accurately determine the amount of phase change (column 17, lines 25-33). It would have been obvious for one of ordinary skill in the art at the time of the invention to incorporate the data carrier phase correcting unit of Shirakata into the system of Ro to allow the data to be received properly and allow the demodulation process to operate quickly and more efficiently.

Regarding claim 4, OFDM systems comprise an FFT. Ro discloses the FFT in column 3, lines 57-65 and Shirakata discloses the FFT in figure 14.

Regarding claim 5, the amplitude of a received signal must be at a level above the noise floor level. Otherwise, a received signal can not be distinguished and recovered. Therefore, received signals are compared to this level and signals above this noise level are processed by the receiver.

Regarding claim 8, Ro discloses a method of using an OFDM communication system (abstract). The system comprises a receiver as shown in figure 6. Pilot signals from each sub-channel are input to a BER measurer 602 to determine the quality of each of the sub-channels. The BER values are compared 604 and the number of pilot carriers to be allocated to a sub-channel is determined by comparing the BER of the sub-channel estimated using pilot carriers in a base station (column 3, line 57 to column 4, line 7). If the BER of the pilot carriers for sub-channel 3 is less than a threshold, the number of pilot carriers is decreased (column 4, lines 22-33). Therefore, the quality of the pilot carriers is determined and when that quality is above or below a

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threshold, the allocation of the pilots is changed. Carriers with acceptable quality will be unchanged and carriers with unacceptable quality will be reduced or eliminated (column 4, lines 22-33). The data carrier and pilot carrier configuration is shown in figure 3. Ro does not disclose a correction unit for supplying a corrected signal comprising information on the data being corrected for a common amplitude error and/or a common phase error. Shirakata discloses an OFDM transmission system that corrects for phase error on each of the sub-carriers so the symbols can be demodulated even if a frequency error and a timing error are occurring between the transmitter and receiver (abstract). Column 15, lines 33-42 discloses a data carrier phase correcting unit directly corrects the data carriers on the basis of the phase error signal. It would have been obvious for one of ordinary skill in the art at the time of the invention to incorporate the data carrier phase correcting unit of Shirakata into the method of Ro to allow the data to be received properly and allow the demodulation process to operate quicker and more efficiently.

Regarding claims 16 and 18, claim 1 recites the correction unit and control unit corrects for a common amplitude error and/or common phase error. The claim requires either the common amplitude error or the common phase error or both of the common amplitude error and the common phase error. In the rejection of claim 1, the combination discloses correcting for the common phase error. The other error (the common amplitude error or the common amplitude error and the common phase error) are optional limitations that are not required since only one of the three errors are necessary. MPEP 2114 recites claim scope is not limited by claim language that

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suggests or makes optional but does not require steps to be performed, or by claim language that does not limit a claim to a particular structure. Steps and components regarding the common amplitude error or the common amplitude error and the common phase error are not required since the common phase error is disclosed by the combination.

### ***Allowable Subject Matter***

Claims 12-15 are allowed.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M. Burd whose telephone number is (571) 272-3008. The examiner can normally be reached on Monday - Friday 9 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Payne can be reached on (571) 272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kevin M. Burd/  
Primary Examiner, Art Unit 2611  
11/23/2009